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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,908	06/24/2003	Hitoshi Uno	0121/0034	7571

21395 7590 07/17/2006

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EXAMINER

LIU, LI

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 07/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/601,908

Applicant(s)

UNO, HITOSHI

Examiner

Li Liu

Art Unit

2613

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>06/24/03, 07/01/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: on page 4 lines 2, 10 and 22, and page 35 line 4 etc, the examiner suggests incorporating the features recited in claims 1, 2 etc. into the specification to facilitate potential further amendments of the claims. In the specification, without explicitly reciting the features recited in the original claims 1 and 2 etc., amendments to the claims may provoke 35 USC 112, 1st paragraph rejection because any amendment would potentially introduce *new matter*.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The ~~specification~~ shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4, 5, 8-10, and 18-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(1) Claim 4 recites the limitation "the predetermined range" in line 3. There is insufficient antecedent basis for this limitation in the claim. "the predetermined range" has not been introduced in claim 1.

(2) Claims 8 and 9 recite the limitation "the predetermined range" in line 4. There is insufficient antecedent basis for this limitation in the claim. "the predetermined range" has not been introduced in claim 6.

(3) Claims 18-21 recite the limitation "the predetermined range" in line 6 (claim 19) and line 4 (claims 18, 20 and 21). There is insufficient antecedent basis for this limitation in the claim. "the predetermined range" has not been introduced in claim 16.

Any claim not specifically addressed, above, is being rejected as incorporating the deficiencies of a claim upon which it depends.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 6-8, 11, 16, 17 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Grivna et al (US 7,062,177).

(1) With regard to claim 1. Grivna et al disclose a subscriber side apparatus (108a in Figure 4) in an optically communicating system for carrying out an optical communication in two ways between a station side apparatus (108b in Figure 4) and said subscriber side apparatus, comprising:

a unit (129a in Figure 4) for detecting a power level of a downward light input signal from said station side apparatus; and

a unit (124a and 116a in Figure 4) for transmitting a control information corresponding to that detection value to said station side apparatus.

(2) With regard to claim 2, Grivna et al disclose wherein the detection value of the power level (REC_PWR_A and then OPT_STATUS in Figure 4, column 5 line 30-40) in the downward light input signal is transmitted to said station side apparatus for each constant time interval (the unit 104 continuously monitor for reception of signal and send status information "within a predetermined period", column 10 line 20-22 and Figure 5).

(3) With regard to claim 6, Grivna et al disclose a station side apparatus (108b in Figure 4) in an optically communicating system for carrying out an optical communication in two ways between said station side apparatus and a subscriber side apparatus,

wherein said subscriber side apparatus (108a in Figure 4) detects a power level of a downward light input signal from said station side apparatus and transmits a control information (REC_PWR_A and then OPT_STATUS in Figure 4, column 5 line 30-40) corresponding to that detection value to said station side apparatus, and

it includes a unit (124b MICRO CONTROLLER in Figure 4) for controlling a power level of a downward light output signal (112e in Figure 4) to said subscriber side apparatus in accordance with said control information.

(4) With regard to claim 7, Grivna et al disclose wherein said control information is the detection value of the power level (REC_PWR_A and then OPT_STATUS in Figure 4, column 6 line 18-32) in the downward light input signal,

whether or not said detection value is within a predetermined range is judged (a lookup table is used by the controller for converting feedback values, column 6 line 51-61), and

if it is outside the predetermined range, the power level of the downward light output signal is switched (column 6 line 51-61).

(5) With regard to claim 8, (whereby the claim 8 is interpreted to depend on claim 7), Grivna et al disclose wherein if said control information is a standard violation report (OPT_STATUS can be interpreted as the standard violation report, column 6 line 33-45) indicating that the detection value of the power level of the downward light input signal is outside the predetermined range, and if said standard violation report is received, the power level of the downward light output signal is switched (column 7 line 45-67).

(6) With regard to claim 11, Grivna et al disclose a station side apparatus (108b in Figure 4) in an optically communicating system for carrying out an optical communication in two ways between said station side apparatus and a subscriber side apparatus (108a in Figure 4),

wherein a power level of a downward light output signal (112e in Figure 4) to said subscriber side apparatus is controlled on the basis of a power level of an upward light output signal (OPT_STATUS in Figure 4, column 7 line 45-52) from said subscriber side apparatus.

(7) With regard to claim 16, Grivna et al disclose an optically communicating system for carrying out an optical communication in two ways between a station side apparatus (108b in Figure 4) and a subscriber side apparatus,

wherein said subscriber side apparatus detects a power level of a downward light input signal from said station side apparatus (REC_PWR_A and then OPT_STATUS in Figure 4, column 5 line 30-40) and transmits a control information corresponding to that detection value to said station side apparatus (OPT_STAUS is transmitted to 108b in Figure 4), and

said station side apparatus controls a power level of a downward light output signal to said subscriber side apparatus (MICRO CONTROLLER is used to control the power level of LD 112e based on the STATUS information, column 7 line 45-52) in accordance with said control information.

(8) With regard to claim 17, Grivna et al disclose wherein said subscriber side apparatus transmits the detection value of the power level of the downward light input signal (REC_PWR_A and then OPT_STATUS in Figure 4, column 5 line 30-40) to said station side apparatus for each constant time interval (the unit 104 continuously monitor for reception of signal and send status information "within a predetermined period", column 10 line 20-22 and Figure 5), and

said station side apparatus judges whether or not said detection value is within a predetermined range (a lookup table is used by the controller for converting feedback values, column 6 line 51-61), and switches the power level of the downward light output signal if it is outside the predetermined range (column 6 line 51-61).

(9) With regard to claim 22, Grivna et al disclose an optically communicating system (Figure 4) for carrying out an optical communication in two ways between a station side apparatus and a subscriber side apparatus,

wherein said station side apparatus controls a power level of a downward light output signal to said subscriber side apparatus (MICRO CONTROLLER is used to control the power level of LD 112e based on the STATUS information, column 7 line 45-52) on the basis of a power level of an upward light output signal from said subscriber side apparatus (OPT_STAUS is transmitted from 108a to 108b in Figure 4).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grivna et al (US 7,062,177) in view of Faulkner et al (US 5,153,764).

(1) With regard to claim 3, Grivna et al disclose all of the subjects matter as in claim1. But Grivna et al does not teach that the subscriber side apparatus determine whether or not the detection value of the power level in the downward light input signal is within a predetermined range is judged, and only if it is outside the predetermined range, that fact is transmitted to said station side apparatus.

However, Faulkner et al, in the same field of endeavor, discloses an apparatus in which the signal receiving side (it is called the "central node" by Faulkner et al) monitors the signal from the outstation relative to a predetermined discrimination value and the value of parameter of signal from the outstation relative to predetermined reference values defining a range of acceptable values; and if the value of said parameter for a detected signal falls outside range, transmitting a control signal to instruct the relevant outstation to alter the value of said parameter as required to bring said value into the acceptable range for subsequent signals originating from that outstation (column 2 line 8-23).

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the apparatus taught by Faulkner et al in the apparatus of Grivna et al so that the abnormal status information is generated in the receiving side. Since only the abnormal status information is sent to transmitting side, less amount of information will be fed back the transmitting side, and then the network resource can be used more efficiently and overall cost can be reduced.

(2) With regard to claim 18, (whereby the claim 18 is interpreted to depend on claim 17), Grivna et al disclose all of the subjects matter as in claims 16 and 17. But Grivna et al does not teach wherein said subscriber side apparatus judges whether or not the detection value of the power level of the downward light input signal is within the predetermined range, and only if it is outside the predetermined range, transmits that fact to said station side apparatus, and said station side apparatus, if receiving said standard violation report, switches the power level of the downward light output signal.

However, Faulkner et al, in the same field of endeavor, discloses a system in which the signal receiving side (it is called the "central node" by Faulkner et al) monitors the signal from the outstation relative to a predetermined discrimination value and the value of parameter of signal from the outstation relative to predetermined reference values defining a range of acceptable values; and if the value of said parameter for a detected signal falls outside range, transmitting a control signal to instruct the relevant outstation to alter the value of said parameter as required to bring said value into the acceptable range for subsequent signals originating from that outstation (column 2 line 8-23).

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the system taught by Faulkner et al with the system of Grivna et al so that the abnormal status information is generated in the receiving side. Since only the abnormal status information is sent to transmitting side, less information amount will be fed back the transmitting side, and then the network resource can be used more efficiently and overall cost can be reduced.

8. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grivna et al (US 7,062,177) and Faulkner et al (US 5,153,764), and further in view of Achour et al (US 6,928,248).

(1) With regard to claim 4, (whereby the claim 4 is interpreted to depend on claim 3), Grivna et al and Faulkner et al disclose all of the subjects matter as in claims 1 and 3. And Grivna et al and Faulkner et al disclose wherein whether or not the detection

value of the power level in the downward light input signal is within the predetermined range is judged.

But Grivna et al and Faulkner et al do not disclose that if a plurality of judged results are continuously outside the predetermined range, that fact is transmitted to said station side apparatus.

However, Achour et al disclose a system and method in which a received signal strength intensity (RSSI) of the optical signal (or BER) is monitored to determine a fault transmission (column 5 line 2-11). The RSSI/BER is constantly monitored, only the RSSI/BER is out of the predetermined range for a specific time interval, the switch is put in operation (Figure 4). By this operation, a brief interruption (abrupt increase or decrease of the receipted power and then back to normal) will not put switch in operation.

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the system and method taught by Achour et al to the apparatus of Grivna et al so that any brief interruption will not make the subscriber side to send the status information to the station side. Therefore, it will make the optical network system more stable and also make the operation of the control easier.

(2) With regard to claim 5, Grivna et al and Faulkner et al and Achour et al disclose all of the subjects matter as in claim 1, 3 and 4. But Grivna et al and Faulkner et al and Achour et al do not teach wherein if a next judged result after a transmission of a standard range violation report is outside the predetermined range, that fact is transmitted to said station side apparatus.

When continuing abnormal status is present, the optical communication system may experience some serious problems, it would be obvious and common practice to inform the network management and the transmitting side about the situation.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit the fact of the continuing abnormal status to the station side so that the problem can be quickly checked and solved.

9. Claims 9, 10 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grivna et al (US 7,062,177) in view of Achour et al (US 6,928,248).

(1) With regard to claim 9, (whereby the claim 9 is interpreted to depend on claim 7), Grivna et al disclose all of the subjects matter as in claim 6 and 7. And Grivna et al disclose wherein if said control information is the standard violation report indicating that the detection value of the power level of the downward light input signal is outside the predetermined range (OPT_STATUS can be interpreted as the standard violation report, column 6 line 33-45, column 7 line 45-67). But Grivna et al does not disclose that if a plurality of detection values are continuously outside the predetermined range, an output power level of the downward light output signal is switched.

However, Achour et al disclose a system and method in which a received signal strength intensity (RSSI) of the optical signal (or BER) is monitored to determine a fault transmission (column 5 line 2-11). The RSSI/BER is constantly monitored, only the RSSI/BER is out of the predetermined range for a specific time, the switch is put in operation (Figure 4). By this operation, a brief interruption (abrupt increase or decrease of the receipted power and then back to normal) will not put switch in operation.

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the system and method taught by Achour et al to the apparatus of Grivna et al so that any brief interruption will not make the subscriber side to send the status information to the station side. Therefore, it will make the optical network system more stable and also make the operation of the control easier.

(2) With regard to claim 10, Grivna et al and Achour et al disclose all of the subjects matter as in claims 6-9. But Grivna et al and Achour et al do not explicitly teach wherein if a next judged result after the power level of the downward light output signal is switched becomes outside the predetermined range, an alarm is outputted.

When continuing abnormal status is present, the optical communication system may experience some serious problems, it would be obvious and common practice to inform the network management etc. about the status. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to output an alarm signal so that the problem can be quickly checked and solved.

(3) With regard to claim 19, (whereby the claim 19 is interpreted to depend on claim 17), Grivna et al disclose all of the subjects matter as in claims 16 and 17. And Grivna et al also teach wherein said subscriber side apparatus transmits the detection value of the power level of the downward light input signal for each constant time interval (REC_PWR_A and then OPT_STATUS in Figure 4, column 5 line 30-40, the unit 104 continuously monitor for reception of signal and send status information "within a predetermined period", column 10 line 20-22 and Figure 5), and said station side apparatus judges whether or not said detection value is within the predetermined range

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(a lookup table is used by the controller for converting feedback values, column 6 line 51-61, and column 6 line 51-61).

But Grivna et al do not teach if a plurality of judged results are continuously outside the predetermined range, switches an output power level of the downward light output signal.

However, Achour et al disclose a system and method in which a received signal strength intensity (RSSI) of the optical signal (or BER) is monitored to determine a fault transmission (column 5 line 2-11). The RSSI/BER is constantly monitored, only the RSSI/BER is out of the predetermined range for a specific time, the switch is put in operation (Figure 4). By this operation, a brief interruption (abrupt increase or decrease of the receipted power and then back to normal) will not put switch in operation.

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the system and method taught by Achour et al to the system of Grivna et al so that any brief interruption will not make the switch in operation. Therefore, it will make the optical network system more stable and also make the controlling operation easier.

(4) With regard to claim 20, (whereby the claim 20 is interpreted to depend on claim 17), Grivna et al disclose all of the subjects matter as in claim 16 and 17. And Grivna et al further teach that said station side apparatus, if receiving said standard violation report, switches the power level of the downward light output signal (OPT_STATUS can be interpreted as the standard violation report, column 6 line 33-45, and column 7 line 45-67).

(5) With regard to claim 21, (whereby the claim 20 is interpreted to depend on claim 17), Grivna et al disclose all of the subjects matter as in claim 16 and 17. But Grivna et al do not disclose wherein said station side apparatus outputs an alarm, if a next judged result after the power level of the downward light output signal is changed becomes outside the predetermined range.

When continuing abnormal status is present, the optical communication system may experience some serious problem, it would be obvious and common practice to inform the network management or controller etc about the problem. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to output continuing abnormal status to the network management etc. so that the problem can be quickly checked and solved.

10. Claims 12-15 and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grivna et al (US 7,062,177) in view of Miki et al (US 6,728,495).

(1) With regard to claim 12, Grivna et al disclose all of the subjects matter as in claim 11. But Grivna et al does not teach wherein the power level of the downward light output signal to said subscriber side apparatus is switched in stages in accordance with a hysteresis property.

However, Miki et al, in the same field of endeavor, discloses a system and method in which the control circuit controls the output of signal level in stages with a hysteresis characteristic (Figure 34, Figure 35 and Figure 21, column 16 line 25-29).

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the apparatus taught by Miki et al to the apparatus

of Grivna et al so that the output power of the light source is changed smoothly and any abrupt change of electrical voltage can be avoided, and it will benefit the protection of the devices.

(2) With regard to claim 13, Grivna et al disclose all of the subjects matter as in claim 6. But Grivna et al does not teach wherein after the power level of the downward light output signal to said subscriber side apparatus is switched, a dummy data is inserted into a downward data.

However, Miki et al, in the same field of endeavor, discloses a system and method in which a "Starting cell" is inserted into the downward data prior to a normal data (Figure 34B) after the switching.

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the system and method taught by Miki et al to the apparatus of Grivna et al so that the normal data will not be corrupted since the staring/dummy data is sent while the light source is in unstable state. Therefore no loss of normal data will occur.

(3) With regard to claim 14, Grivna et al disclose all of the subjects matter as in claim 6. But Grivna et al does not teach wherein the power level of the downward light output signal to said subscriber side apparatus is gradually changed.

However, Miki et al, in the same field of endeavor, discloses a system and method in which the power level of the light output signal is gradually changed (Figure 34 and Figure 35).

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the system and method taught by Miki et al to the apparatus of Grivna et al so that the output power of the light source is changed gradually and any abrupt change of electrical voltage can be avoided, and the data can be smoothly transmitted, and it will also benefit the protection of the devices.

(4) With regard to claim 15, Grivna et al disclose all of the subjects matter as in claim 6. But Grivna et al does not teach wherein the downward light output signal to said subscriber side apparatus is a burst signal, the power level of the downward light output signal is switched between said burst signals, and a preamble signal is added to a lead of said burst signal.

However, Miki et al, in the same field of endeavor, discloses a system and method in which a burst signal is used for the optical signal transmission (Figure 34B, and column 3 line 28-30). And Miki et al also teaches that to function automatic power control to cope with burst signals i.e. to maintain light output for a sufficient time during no-signal period between each burst signal. That is, the switch can also be done between two burst signals.

It was also common practice in the art at the time the invention was made to use a preamble in burst signal for the purpose of identification, clock recovery and symbol synchronization.

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the system and method taught by Miki et al to the apparatus of Grivna et al so that the burst signals with preambles are used for the signal

transmissions, and less error will occur since the switch is operated between burst signals.

(5) With regard to claim 23, Grivna et al disclose all of the subjects matter as in claim 22. But Grivna et al does not teach wherein said station side apparatus switches the power level of the downward light output signal to said subscriber side apparatus in stages in accordance with a hysteresis property.

However, Miki et al, in the same field of endeavor, discloses a system in which the control circuit controls the output of signal level in stages with a hysteresis characteristic (Figure 34, Figure 35 and Figure 21, column 16 line 25-29).

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the system taught by Miki et al with the system of Grivna et al so that the output power of the light source is changed smoothly and any abrupt change of electrical voltage can be avoided, and it will benefit the protection of devices.

(6) With regard to claim 24, Grivna et al disclose all of the subjects matter as in claim 16. But Grivna et al does not teach wherein said station side apparatus, after switching the power level of the downward light output signal to said subscriber side apparatus, inserts a dummy data into a downward data.

However, Miki et al, in the same field of endeavor, discloses a system in which a "Starting cell" is inserted into the downward data (Figure 34B) after the switching prior to a normal data.

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the system taught by Miki et al to the system of Grivna et al so that the normal data will not be corrupted since the staring/dummy data is sent while the light source is in unstable state. Therefore no loss of normal data will occur.

(7) With regard to claim 25, Grivna et al disclose all of the subjects matter as in claim 16. But Grivna et al does not teach wherein said station side apparatus gradually changes the power level of the downward light output signal to said subscriber side apparatus.

However, Miki et al, in the same field of endeavor, discloses a system in which the power level of the light output signal is gradually changed (Figure 34 and Figure 35).

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the system taught by Miki et al to the system of Grivna et al so that the output power of the light source is changed gradually and any abrupt change of electrical voltage can be avoided, and the data can be smoothly transmitted, and it will also benefit the protection of the devices.

(8) With regard to claim 26, Grivna et al disclose all of the subjects matter as in claim 16. But Grivna et al does not teach wherein the downward light output signal to said subscriber side apparatus is a burst signal, said station side apparatus switches the power level of the downward light output signal between said burst signals, and adds a preamble signal to a lead of said burst signal.

However, Miki et al, in the same field of endeavor, discloses a system in which a burst signal is used for the optical signal transmission (Figure 34B, and column 3 line 28-30). And Miki et al also teaches that to function automatic power control to cope with burst signals i.e. to maintain light output for a sufficient time during no-signal period between each burst signal. That is, the switch can also be done between two burst signals.

It was also common practice in the art at the time the invention was made to use a preamble in burst signal for the purpose of identification, clock recovery and symbol synchronization.

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the system and method taught by Miki et al to the apparatus of Grivna et al so that the burst signals with preambles are used for the signal transmissions, and less transmission error will occur since the switch is operated between burst signals.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Tilly (US 4,553,268) discloses a circuit arrangement in which a control signal in a receiving device is generated and is then fed back to the transmitting device through a return channel to control the output of the laser diode as a function of the received control signal.

Morita et al (US 5,706,112) disclose a light signal remote control apparatus and light signal level controlling method.

Yoneyama (US 5,801,860) discloses a transmission system comprising a feedback section for transmitting a light power level signal from a light receiver to a light transmitter.

Ikeuchi et al (US 6,282,216) disclose a burst mode optical transmitter circuit.

Takamatsu (US 5,822,099) discloses a light communication system in which the light emission intensity is adjusted by a light emission driving control circuit and light reception intensity is feedback to the control circuit.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li Liu whose telephone number is (571)270-1084. The examiner can normally be reached on Mon-Fri, 7:30 am - 5:00 pm, alternating Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571)272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Li Liu
July 7, 2006



**SHUWANG LIU
PRIMARY EXAMINER**